REGARDING THE PROTECTION OF RHIC ACCELERATOR SYSTEMS FROM DAMAGE DUE TO POWER LINE FLUCTUATIONS THAT ARISE FROM THUNDERSTORM OR OTHER SEVERE WEATHER ACTIVITY

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The OC is responsible for attempting to protect RHIC and other C-A accelerator systems from power line fluctuations that arise due to sever weather conditions. The potential for foul weather should be discussed at each shift change. The following are guidelines for the OC to follow when severe weather is expected.

- Check the WEATHER RISKS at the start of each shift
  http://www.weatherbank.com/CSM705/brookhaven/
- IF you get word of approaching storms THEN monitor them using the RADAR DISPLAYS
  http://www.weatherbank.com/CSM705/brookhaven/

- When looking at RADAR DISPLAYS, IF you see severe storms (yellow /red) moving **in the direction of BNL** THEN contact Jon Sandberg or his designate (T. Nehring, I. Marneris) to get approval to shutdown and/or.

- LOOK at LIGHTNING STRIKE DISPLAYS. IF you see lightning strikes, 15-20 miles away AND moving **in the direction of BNL**, THEN contact Jon Sandberg or his designate (T. Nehring, I. Marneris) to get approval to shut down
  http://www.weatherbank.com/CSM705/brookhaven/

- Consult with one of the following to determine whether to interrupt RHIC operation to protect equipment:
  During set up/commissioning – the RHIC commissioning shift leader,
  During normal operation/physics production – the Scheduling Physicist

- IF the decision is made to turn off the RHIC, THEN
  Phone the users (if appropriate)
  Abort the beam(s) YOU MAY BE REQUIRED TO DO SO WITHOUT THE USERS CONSENT
  *Turn off BMMS (below)
  **Turn off RHIC power supplies (below)
  ***Turn off “big bend” power supplies (below)
  Turn off RHIC injection and abort kickers
  ****Turn off AMMPS (below).
  Turn off all pulsed Tandem, Booster, and AGS equipment. (As an aid use SpreadSheet/AGS/Storm_Pulsed_Power or /Booster/Storm_Pulsed_Power files and pet/RHIC/Storm_Pulsed_Power file for kicker magnet power supplies)
  Inhibit Booster and AGS Rf. Turn off Tandem HV and Linac Rf and Tank Quads

- Keep the RHIC off until the power line is stable or until instructed to re-start by a Division or Department manager.

*TO TURN OFF BOOSTER MMPS

- Single Cycle the Power Supply
- THEN open breaker by pressing disable button at MCR_1-1Y14
- To turn ON you have to push button again then go to bldg 930A and set power supply to Standby then ON

**TO TURN OFF RHIC POWER SUPPLIES

- Ramp all power supplies from γ=70 to Injection and then from Injection to Park, and then from Park to zero. This can be done using psall and "all power supplies" (includes IR supplies, TQ supplies, Sextupole supplies, Gamma-T supplies, and corrector supplies).
- IF you are at Injection then ramp from Injection to Park and then from Park to zero.
- IF you are at Park then ramp from Park to zero.
- From StartUp/RHIC PS Management/ start the **psall** application
- Choose the "**Building**" view
- For EACH of the following buildings: 1002B, 1004B, 1006B, 1008B, 1010A, 1012A
  - Left Click on **liveCurrent** (13th column heading)
  - Left Click on **here2zero**
  - Middle Click on the new column heading **here2zero** to send the global command
  - Wait for the supplies to run down to zero current
  - Left Click on **State** heading of column two
  - Left Click on **Stby**
  - Middle Click on the new column heading **Stby** to send the global command
- After all power supplies are at standby, then to put all of the power supplies to OFF

***TO TURN OFF "BIG BEND" POWER SUPPLIES

- From StartUp/General programs start the **pet** application
- Go to AGS/Safety/critical_Devices/**cdev_Magman**
- For EACH supply: pswarc20, psxarc90, and psyarc90
  - Go to the **Control** (fifth) column
  - Left Click on the power supply state
  - Left Click **OffSeq**
  - Middle Click the new **OffSeq** state to send the command

****TO TURN OFF AGS MMPS

- Ask Siemens operator to turn off pulsing and excitation
- Ask Siemens operator to switch from Cyclo-converter motor speed control to Liquid Rheostat during Siemens operation. During Westinghouse operation ask the operator to switch to the appropriate Motor Speed Control.